

R-INT
RESEARCH PROGRAM
General

PRESENT AND PROPOSED RESEARCH PROGRAM
OF THE INTERMOUNTAIN FOREST AND RANGE EXPERIMENT STATION
IN SOUTHERN IDAHO

by Donald W. Lynch
Boise Research Center Leader

(Talk presented to the Southern Idaho Forestry Association on March 17, 1956)

I am glad to have this opportunity to talk to you about the research work of the Intermountain Station--specifically, the research program here in Southern Idaho. In a real sense, people like yourselves are my employers--at least you are stockholders in the "company"--and our Station is here in southern Idaho because you want forest and range research conducted here. Remember, too, that the forest and range experiment stations of the U. S. Forest Service are charged with conducting research for all wild lands--not merely those in Federal ownership. For this reason we welcome a chance to review our program with you and to get your views and suggestions.

In the short time that I have, my talk, I fear, will sound very much like a reading of lists--lists of jobs that we are doing, and lists of jobs we think should be done. Details must necessarily be omitted, but I will welcome any questions you may have if time permits.

The activities of the Intermountain Forest and Range Experiment Station are divided into eight divisions. Here at the Boise Research Center, which is a branch station, four of those divisions are represented. The other four are handled out of Ogden, but much of their work covers problems in southern Idaho.

The organization chart shown here indicates the four divisions that we have at the Boise Research Center. They are:

(At this point the organization chart is shown and explained.)

Let me take these eight divisions individually and tell you very briefly the work we are doing in them and the problems which we believe exist. You will very soon detect that the problems are far greater and more numerous than a staff the size of ours can cope with. I think you will see why we are eager for all the cooperative help we can get.

Forest Management Research

Southern Idaho is still blessed with a large volume of old growth timber. One of our most important and most immediate problems in forest management research is to learn how to harvest these stands in a way to achieve maximum production from the residual growing stock and to regenerate the cut areas to desirable seedlings. This problem is especially important in ponderosa pine, despite the fact that ponderosa pine has probably been the most studied of any of our western species. There still exists a controversy over the basic type of silviculture that should be used.

We are attacking the problem on the Boise Basin Experimental Forest by a rather comprehensive methods-of-cutting study. Many of you here today have seen these cuttings on the ground, so I will not elaborate on them. The experiment is designed to give both long-term and short-term results covering such factors as growth, mortality, regeneration, soil erosion, and timber stand improvement. I can't discuss the ponderosa pine production study without mentioning the wonderful cooperative help that the Station received from the Boise Payette Lumber Company, MacGregor Logging Company and the Boise National Forest. It's the kind of mutual

endeavor that has proven so productive of research results.

The Station is requesting the addition of 1200 acres of second-growth ponderosa pine to the Experimental Forest where further studies in TSI cuttings and intermediate harvest cuttings can be carried on. This area is near Idaho City and is presently part of the Boise National Forest.

Regeneration studies are being pushed this year with Jim Curtis devoting most of his time to this field. Although his responsibilities are Station-wide, much of his work will be on ponderosa pine regeneration studies at Idaho City, and our own Forest Management staff will be devoting considerable time to it. I hope that many of you can visit the Experimental Forest this summer and let us tell you more about this work. Al Wilson, superintendent of the Experimental Forest, will be glad to show you around. Here is a project where cooperation with industry could prove very fruitful.

As a part of a Servicewide project to prepare a Manual of Silvics for important forest trees of this country, the Station as a whole is preparing writeups for seven species. The Boise Research Center is helping Jim Curtis prepare the section on ponderosa pine.

These are some of the jobs we are doing in Forest Management Research, but there are many others we would like to do. Harvest cutting problems and regeneration problems are not unique to ponderosa pine. Spruce and Douglas-fir types need study. Lodgepole pine is important, too, and considerable work on this species is being conducted out of our Missoula Research Center.

There are some real needs in mensurational research to construct

better volume and yield tables and to develop improved methods of site evaluation, especially on land that does not support trees at the present time. We hope, eventually, to get some of these projects started.

While I am talking about Forest Management Research I want to tell you about our plans for genetics studies. Just yesterday your committee on forest genetics met and we laid the ground work for a very promising cooperative program with Industry, the University of Idaho, the State Forestry Department, and the Forest Service. Until we are able to hire a full-time geneticist, our Station's contribution will have to be limited to consulting help from our geneticists at Spokane.

Forest Insect Research

Here is another division which I know is of interest to all of you. Many of you have been involved one way or another in the spruce budworm and pine butterfly control projects and are very familiar with these two serious forest pests. And I know you all are aware of the tremendous damage being caused by the Douglas-fir bark beetle.

Our hope is to learn enough about these insects that some form of natural control can eventually replace the very costly direct control jobs, and that the great losses to our forests can be reduced. With only two men on the staff, and one of them devoted nearly full time to the direct control project, research efforts will be rather small compared with the task. This season will be the first time that a man will have spent full time on research, however, so progress is being made. Mal Furniss will devote all of his time to studying the Douglas-fir bark beetle, attacking first such factors as the severity of damage, nature of the stands being hit, relationship of the bark beetle to its environment, and factors affecting the rise and fall of populations.

After the control project, Walt Cole will make a start on a study of spruce budworm populations as they are correlated with damage.

Other insects which are important to southern Idaho and which we hope to study eventually are the mountain pine beetle, the Engelmann spruce beetle, pine engraver beetles, cone and seed insects, and wood products insects.

We are continuing to make observations on a large number of ponderosa pine trees severely damaged by the pine butterfly in 1954, to study their recovery or mortality. Along with control and research, our entomologists also conduct intensive surveys every year to detect insect outbreaks and to follow the progress of known infestations.

One of the first needs of research entomologists is a laboratory in which to carry on their detailed studies. We have just completed plans to build such a laboratory--which the entomologists call an insectary--near our office on Myrtle Street. This building will contain facilities to rear insects under controlled conditions and to study their natural enemies the year round. It will be a big step toward better research facilities here in Boise; we hope to have the insectary operating by summer.

Forest Disease Research

While we are discussing destructive agents, forest diseases must not be overlooked. The only forest pathologist in the Intermountain Region is Dr. Mielke who is supervised from Ogden and spends part of his field time in southern Idaho. His chief project in this area is with the ponderosa pine blight caused by the fungus Elytroderma deformans. He is conducting life history studies with the hope that they will lead to a practical means of control.

Other studies in southern Idaho include the role of disease in the postlogging mortality of ponderosa pine, with chief emphasis on the root rot, Fomes annosus, experiments aimed at chemical control of dwarfmistletoe, and gathering supplemental information on the life histories of several rusts of conifers.

It is evident from the size of the area and the seriousness of the problems that more effort is needed in this division. Our Station will add a pathologist to the Boise Research Center as soon as possible to intensify the present studies and to initiate further research.

Forest Utilization Research

Work by the Forest Utilization Service is restricted, at this time, to the efforts of one man, Ed Kotek, covering the entire Station territory. Ultimately it is hoped that a man can be added to the Boise Research Center staff to work on local problems full time.

Here is a list of projects that Ed Kotek believes are important; many of them are currently being studied by your local industries.

1. Reduction of log harvesting costs.
2. Improving log storage.
3. Improving sawmilling and seasoning practices.
4. Improving the understanding and use of log and tree grades and lumber grade recoveries.
5. Developing specifications and techniques for veneer logs and flitches.
6. Improving the fabrication techniques of plywood from local species.
7. Developing adequate strength data for local species, especially Douglas-fir.
8. Assisting in evaluating pulp and paper opportunities.

9. Improving the performance of wood in end-use through proper manufacture, preservative treatment, fabrication, and design.

Watershed Management Research

Here is a division of research that we might safely say is basic to all the others, because it concerns our greatest resources of all--soil and water. When I look at this organization chart and see but one name under Watershed Management Research, I almost feel ashamed. Haupt looks lonesome on the chart, and believe me, he is lonesome among the tremendous problems he faces. Some of these broad problems are:

1. How to control soil erosion and sediment production during and following logging on steeply sloping ponderosa pine forest lands having loose granitic soil.
2. How to restore soil stability on depleted foothill bunchgrass range and subalpine herbaceous range.
3. How to maintain favorable conditions of runoff from foothill and high elevation ranges under the impact of livestock grazing.
4. How to improve water yields from ponderosa pine forest lands by silvicultural methods.

How are we tackling this formidable list of problems?

A good share of Harold's work is on the Boise Basin Experimental Forest where he is evaluating the soil disturbance and sediment production caused by different methods of logging and cutting practices. Some of you have seen the sediment catchment basins installed for this study.

Methods of controlling erosion on logging haul roads and skid trails are being studied on four timber sale areas in the Boise and Payette National Forests. A rather intensive road seeding study was installed last fall with

the help of the Boise National Forest and a private logger.

At Arrowrock station, we are studying the effects of range reseeding on soil stability. Our small efforts there need strengthening.

With a view to some long-range water yield studies on ponderosa pine timber lands under management, we hope this summer to locate suitable watersheds where initial calibration tests can be started.

Forest Fire Research

Our Fire Research Division is working with the Weather Bureau, the Bureau of Land Management, the State Forestry Department, and National Forest Administration to extend fire weather ratings to southern Idaho. New fire weather stations are being established and available data are being analyzed in order to adapt the fire meter more successfully to this area.

Some work with logging slash has been started. Fahnestock, of our Station, Boyd Rasumssen of the Forest Service, and Art Roberts of Southern Idaho Timber Protective Association, have looked over problem areas to adapt information prepared from Northern Rocky Mountain studies.

Other urgent fire research problems include such projects as cloud and lightening surveys such as are being conducted in the northern region and which should be expanded to include southern Idaho.

Another urgent need is for fire weather evaluation in southern Idaho. Slash from logging and catastrophes of nature creates special hazards which should be evaluated. There is a need for studies of fire control leading to new, ingenious, and perhaps bolder methods of suppression.

Range Management Research

Our range management activities are rather far-flung. Jack Schmautz is located at Dubois, in eastern Idaho, where he is engaged in research

on the management of sagebrush-grass range at the U. S. Sheep Experiment Station. This research includes basic studies of the ecology of the vegetation of the sagebrush type, response of the vegetation to time and intensity of grazing by sheep, and evaluation of the effects of sagebrush burning and other range-improvement measures.

Another of our range projects is aimed at learning how to revegetate depleted deer winter range on the Payette and Boise drainages. Ralph Holmgren spends nearly full time on this project. This is another example of successful cooperative effort, where several agencies can accomplish more together than any one could do separately. Joe Basile, of the State Fish and Game Department, works with our man on a full time basis, and in addition the State furnishes material and temporary labor. The U. S. Fish and Wildlife Service and the Boise National Forest are also cooperators on this project. We feel that great strides have been made in learning how to grow bitterbrush--the most promising of the shrubs that have been tested.

Speaking of cooperation, I should say that the University of Idaho has stationed a range researcher, Min Hironaka, with us here in Boise, and he is conducting studies in sagebrush-grass ecology and noxious plant control.

Justin Smith, the project leader of our range group, is currently studying successional changes in herbaceous mountain vegetation of southwestern Idaho. He is re-examining old plots which were established over 25 years ago, some of which have been protected from grazing all these years. There is a wealth of basic information to be learned from a study of these old plots.

Other critical needs in range research include the development of methods for measuring range condition and trend as a basic step to determining grazing capacity and evaluating effectiveness of management. Such work is especially necessary on mountain herbland types where control of soil erosion by plant cover is of paramount importance.

The evaluation of forest management practices in terms of livestock and wildlife forage production, and of range management practices in terms of forest regeneration and watershed protection, need studying.

Methods should be developed to improve annual ranges in order to restore the less inflammable, more productive perennial herbs and to reduce fire hazard to the adjacent shrub and timbered ranges.

Forest Economics

The answers to problems approached through economic analysis are generally applicable over a rather large area. The following studies might or might not be conducted in south Idaho, but certainly the answers are important to its timber land managers.

1. Place of the national forests in the economy. Such a study has two broad phases; the value and importance of the resources in the national forests, and the relation of national forest management and policies to the economy of dependent communities.
2. Interpretation of national timber appraisals as they apply to the forests of this region.
3. Economics of planting and stand improvement including thinning, and pruning.
4. The use of wood residues.
5. The study of wood transportation by truck.

6. A study of the marketing factors in the utilization of Rocky Mountain timber.

7. A study of the economics of disease and insect control.

One of the most important projects of the Economics division is the forest survey. Field work of the survey has been completed in southern Idaho and we are now in the process of compilation and report preparation.

In eastern Idaho, a current study is involved with timber industry opportunities. The careful analysis of the area and its problems and opportunities will be especially helpful to new industries seeking to locate there.

I have given you a brief picture of the current program of the Intermountain Forest and Range Experiment Station in southern Idaho and have listed other important studies. The problems are great; the research force of any one organization is hardly adequate for the entire job. By integrating our efforts closely with the efforts of other institutions, agencies, and industries we feel that we can accomplish the most with what we have. The Station will continue to cooperate in any way possible on any projects which are soundly conceived and pointed at forestry problems of high priority in southern Idaho.